

VIABILITY INDEXES OF THE COMMON REED'S SEEDS FROM WATER-BODIES WITHIN THE CHERNOBYL ACCIDENT EXCLUSION ZONE

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The most radiosensitive indicator of plants, as of all living organisms, is the process of generative reproduction. The seeds of plants are convenient object for investigation of chronic radiation effects on reproduction ability. For assessment of remote effects of chronic radiation influence on the air-aquatic plants there were sampled seeds of the common reed (*Phragmites communis*) of 2009 vegetation year. Specimens were sampled from closed natural water bodies of the Prypiat River floodplain within the Chernobyl exclusion zone, from man-made weakly flowing cooling pond of the Chernobyl NPP and from Verbne Lake, with background level of radioactive contamination. The seeds were germinated in Petri dishes at the stillage in conditions of 5-10 kLk and 20-24 °C. The vitality of seeds was assessed by the indexes of technical germinating ability, germinating power, period of appearance of the first and last germ and survivability. Statistical calculations were carried out with the use of standard methods of variation statistics and correlation analysis. The average absorbed dose for plants from these water bodies varies from 0.003 to 12.0 cGy/year. Studies show the reducing of seeds vitality in conditions of increase of small doses of chronic radiation effects. In relatively favourable conditions maximal number of seeds germinate only at 2nd-5th day after planting. However, the dynamics of germination with considerably longer period and two maximums is registered for seeds of plants from Glyboke Lake, water body with the highest rate of absorbed dose – 12.0 cGy/year. The least rate of abnormalities in germination dynamics are observed in seeds of relatively young population of reed from Yanivskyi Creek, growing at sand levee, built after 2000 and from Verbne Lake. At 2nd day germinated 59.6 % of seeds of plants from Yanivskyi Creek and at 5th day germinated 78.7 % of seeds from Verbne Lake, relatively to numbers of all germinated seeds from both water bodies. The mostly anomalously this process goes on in seeds of plants from Glyboke Lake. In this case only 14.5 % of seeds germinated at the 2nd day, but maximal number of seeds germinated at 9th and 19th day (27.6 % and 23.7 % correspondingly). There is registered negative linear correlation between indexes of absorbed dose, germinating power ($r = -0.95$) and survivability ($r = -0.64$). The index of technical germinating ability enough moderately correlates with absorbed dose ($r = -0.34$). Thus, vitality of seed progeny of the common reed, which grows in the gradient of radioactive contamination of water bodies of the Chernobyl accident exclusion zone, reduces with the increasing of dose rate, absorbed by plant. Obtained data about state of seed progeny of dominant species of air-aquatic plants of littoral ecotones may be used in radioecological monitoring of radioactive contaminated water bodies.